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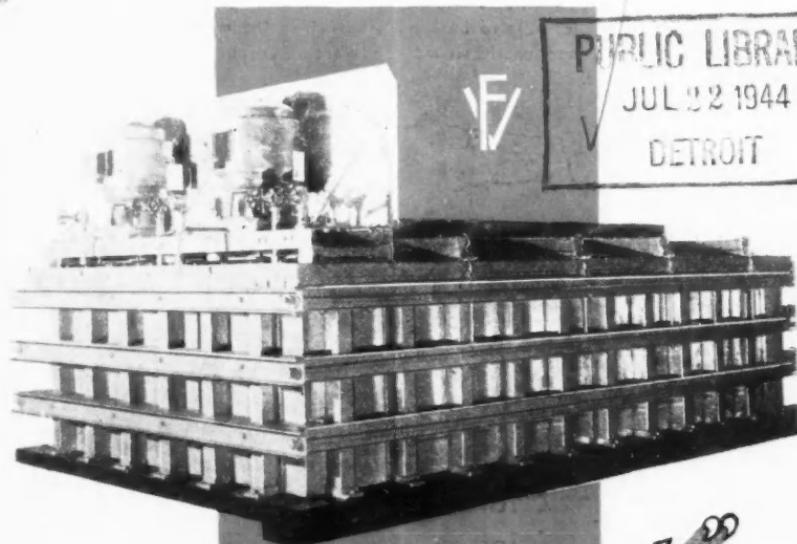
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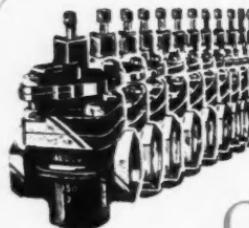
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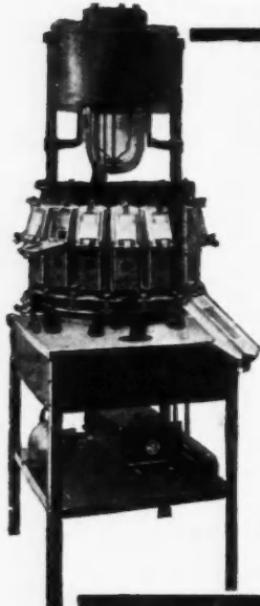


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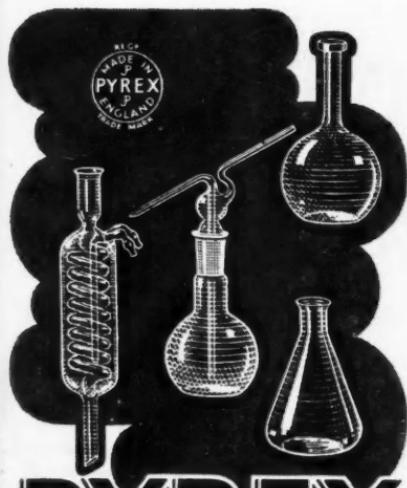
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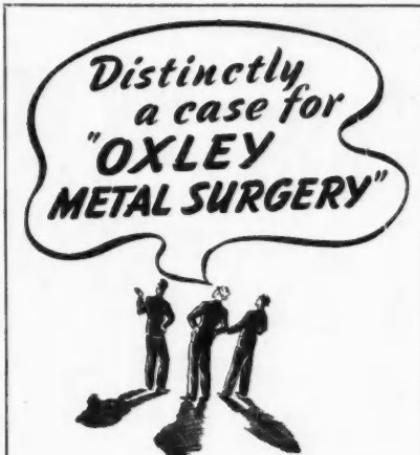


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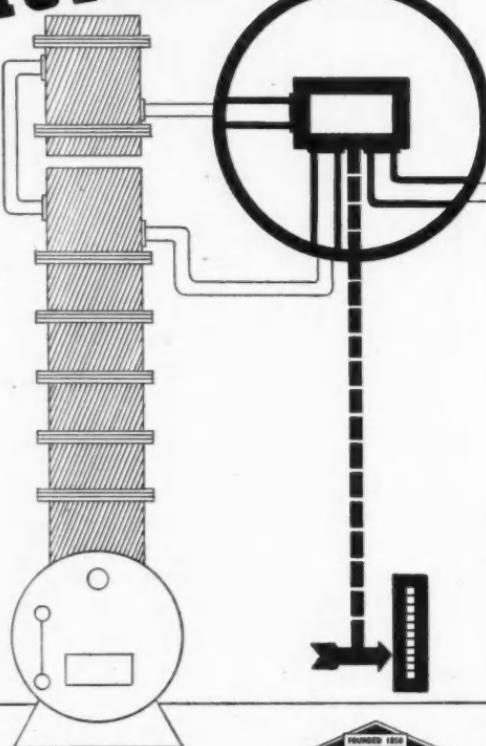
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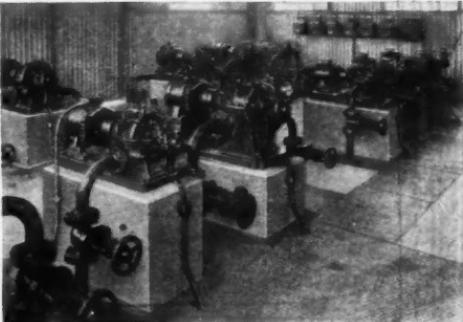
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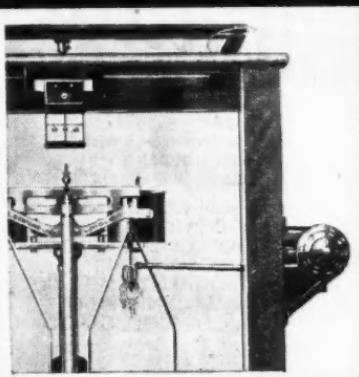
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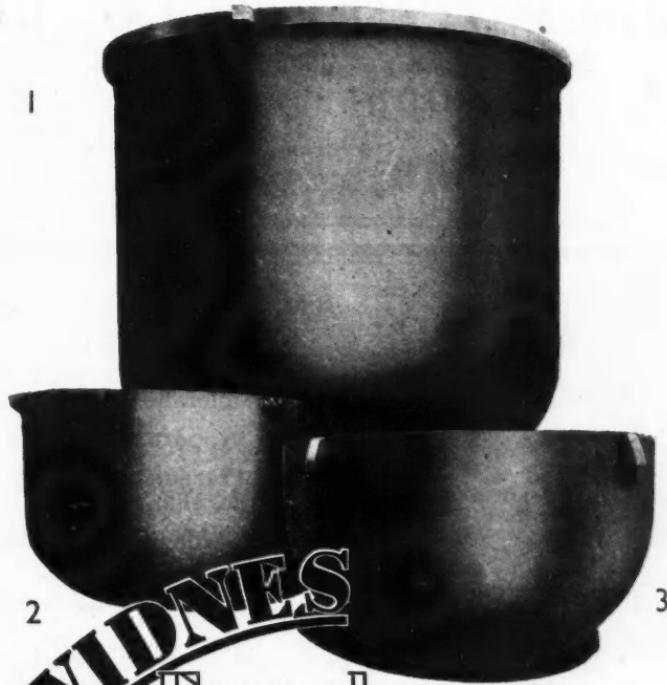
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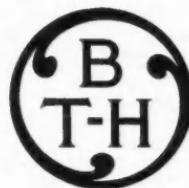
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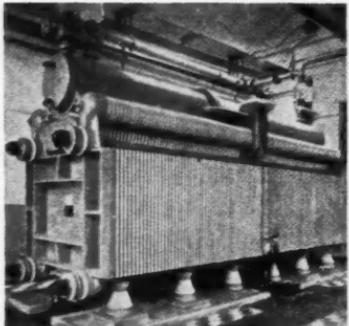
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Education for Industry

IT has been said that we are at the end of an era, and that with the end of the war we shall enter a new order so utterly different from that which we knew before the war that no going back will be possible. To a great extent that was so as a result of the last war. The world of 1920-1930 was vastly different from the world of 1900-1914. In industry there was an increasing use of science and technology, a decreasing use of manual labour, and in every respect an urgent need for intelligence. We may go even further and say that whereas before 1914 a man could earn his living in many walks of life without being able to read or write, to-day it is necessary not only to read and write but to understand the rudiments of subjects which were reserved for the most highly educated not so many years ago. If it is possible to forecast from past experience over the last two or three generations the order that will exist after the war, we shall be safe in predicting that the outstanding characteristic will be a still greater reliance upon science and technology and the demand for still higher standards of education not only from engineers, chemists, and foremen, but also among the rank and file of industry.

The Federation of British Industries has just issued the report of its Education Committee on "Industry and Education." Behind this report there appears to lie discontent with the present products of the schools. The first essential for those entering industry is "to read, write and speak clearly," we are told, and unquestionably in the word "clearly" we have something which those who are planning our secondary schools should bear carefully in mind. Again and again the report emphasises that the cramming of facts does not produce a satisfactory workman, foreman, or technician. Those who have had vast quantities of facts crammed into them for examination purposes know well that after leaving their university or school they required comparatively few facts,

but they do require a wide knowledge of principles, and it is here that the advocacy of the Federation will be very valuable. It is complained that "inadequate knowledge of elementary arithmetic and inadequate powers of expression, both written and oral, are far too general"; and that "there is also some evidence of poor powers of memory and bad writing, and lack of discipline and sense of responsi-

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bility. . . . There is also generally too much insistence at school on the memorising of facts at the expense of instruction in principles, and too little attention to the desirability of special methods for teaching those requiring differential treatment, present methods being too academic and based too closely on secondary school procedure." A rather wholesale indictment!

The report next criticises the product of the higher schools. The standard of education of those from secondary and technical schools at 16 or over is generally fairly good, but there has been some deterioration, due presumably to the causes that have operated to produce the war-time deterioration noted above in elementary education. There is, however, evidence that children from secondary schools have been unduly crammed on account of having to pass stereotyped examinations. Even universities come under the lash because (the report points out) there is some evidence that there also education tends to be too factual and not to give sufficient weight to the study of principles and the development of the imagination.

The remedies for these defects are to come from attention to the development of powers of clear self-expression and writing in the elementary schools, with a more thorough grounding in elementary mathematics. It is again stressed that there should be less emphasis on the acquisition of facts and specialised knowledge and more on the desired broad understanding of general principles and trends. Some degree of training in social responsibility is also wanted. Probably no attempt at reform in these directions will be successful unless accompanied by a substantial reduction in the size of classes. Increased attention to physical training and the creation of greater opportunities for educative outdoor pursuits also seem called for. The emphasis placed on evening classes in the past is now deprecated as it is believed that neither students nor teachers are at their best in the evening. A number of the larger firms maintain their own works schools for their younger entrants, giving both a vocational and a general education. These are in fact part-time continuation schools, and the Federation welcomes the assurance contained in the White

Paper that, provided they reach the necessary standards, they will be regarded as effective substitutes for the projected Young People's Colleges provided by the local education authorities.

The examination system is called into question as it has been so many times before. Practically everybody is agreed that examinations are not the best way of testing students' capabilities, since they must of necessity be based more on memory than on intelligence. The Federation is to be congratulated on putting forward an alternative proposal. Attention is drawn to the work that has been done in the Services, and to some extent in industry, on the elaboration of psychological and similar tests of aptitude and ability. It is felt that educationalists and industrialists might study this work with advantage as the technique evolved may prove adaptable for use in conjunction with whatever substitute may be found for the School Certificate, as well as for other educational purposes. The importance of applied psychology has been indicated in *THE CHEMICAL AGE* on past occasions. Whether it is yet sufficiently reliable to be put forward as a general alternative to examinations we do not know, but it appears to us that it is certainly a better guide to a vocation than the present examination system, and it would lead to an education designed to foster the right characteristics, mental and moral, rather than to the accumulation of facts that are of trivial value or are soon forgotten.

In criticising existing educational methods, it is not forgotten that industry has its own responsibility towards education. It is recommended that industry shall establish contact with schools and local education authorities in each area and that it should be represented on the local employment advisory committees which guide school-leavers on choice of occupation and often keep a friendly eye on the child's progress in his job. There will undoubtedly be a shortage of teachers after the war, and since the majority of those from elementary and secondary schools will enter industry, it seems commonsense to suggest that there should be some close connection between teachers and industry. It would be useful, for example, if every teacher could have spent a year

or even three months working in the industries of his area in order that he should know the sort of background that awaits his pupils when they leave school. Industry must also make its own distinctive contribution to the training of its employees. Vocational training is already largely undertaken by individual firms, its principal form being the apprenticeship system. Certain firms also maintain their own schools, many of which have proved a most successful experiment, and greater numbers of industrial undertakings might well consider establishing them. It is appreciated that it would not be possible for the smaller firms to maintain their own schools, but by co-operative effort between firms in the same or related trades in any particular locality much might be done. This is a matter that might well be taken up by trade associations where the geographical distribution of their members permits it.

Industry, in short, has a great responsibility as regards the education and training of the young, both inside and outside the works; a responsibility which it has not always accepted in the past. It is, however, a task which must be faced if the expected benefits from the forthcoming educational reconstruction

are to be realised. In this connection the Federation notes with approval the increasing tendency for firms to appoint education officers, who should be consulted by managements on all general educational matters and should be charged with the development and supervision of suitable education and training schemes.

The purpose of education must be two-fold: (1) to produce what the Federation calls "a fully integrated personality"; and (2) to fit the student for his future work. The second function does not mean early specialisation, but it means the formation of those habits of mind, coupled with the essential degree of competence in certain subjects such as mathematics, English, and so forth, which are a desirable background for successful employment. While industry cannot claim any competence to speak on general education, it can and should acquaint educational authorities with its requirements, and in so doing help them to build up a balanced syllabus and method which will lead to the best possible result for the individual and for the nation. It is a long time after a man leaves his school or university before he can regard his education as finished—and the more intelligent never cease from learning.

NOTES AND

Hungarian Oil

THE intensity of the allied air attack on European oil centres indicates that the experts behind the strategy of economic warfare believe that dwindling oil supplies represent one of the weakest threads in the fabric of the Nazi war effort. Wherever large quantities of oil are mined, refined, or stored, there the bombers strike, while our efforts to sever the transport lines that connect oil wells with refineries are sustained and systematic. Great damage, too, has been done to Germany's synthetic oil plants. In the light of what our bombers have been doing during recent weeks, we were interested in a note about Hungarian oil production that appeared in *Foreign Commerce Weekly*. The petroleum industry in Hungary is barely seven years old, but it is estimated that last year its output amounted to about 7½ million

COMMENTS

barrels of oil. Between 1941 and 1943 output was almost doubled, a measure of the reliance which Germany puts upon the mineral resources of its satellites.

Bombing Refineries

EXPLORATION of the oilfields of Budafapuszta and Lovaszi in the south-west has proceeded with particular rapidity, yielding excellent light-gravity fuel and small quantities of lubricants. New explorations have been made in various parts of the country under pressure from the Germans, while a new company with a capital of 10 million pengö, Ungarisch-Deutsche Erdölwerke A.G., is working a large concession on the left bank of the Danube. Before the war Hungary was able to refine just over 3½ million barrels of oil a year, and it seems most likely that the Nazis have had to rely on refineries outside Hungary

to absorb the increased output. The refineries at Fiume and Trieste in Italy, as well as others in Czechoslovakia and Poland, have probably been used to process this oil. These details give a sharper significance to reports of the bombing, within the last fortnight, of Hungary's biggest oil refinery and of the Aquila refinery at Trieste. In the past ten weeks, 11,000 tons of bombs have been dropped in 29 attacks against 22 refineries and storage depots.

Another Statement on Research

EARLY this year two private conferences were held under the auspices of Nuffield College to discuss the part played by scientific research in national progress. Over 80 persons attended, including several industrialists as well as many well-known scientists. Based on these discussions is the statement issued under the title of *Problems of Scientific and Industrial Research* (Oxford University Press, 2s.). Offered to the reader "as a contribution to the current discussions of post-war economic and educational policy," it is largely a re-statement of a case with which we have been made abundantly familiar during the last year or so. We welcome the document, not for its appeal to the already converted, but because it may bring home to those who are still unconvinced the force of the argument that progress in a technological era is determined primarily by the amount of research carried out, its quality and its extent. Those who find statistics and fine details tedious will probably enjoy this booklet, for such things have not been included, but we cannot avoid the thought that the sound generalisations that are advanced would have carried greater conviction had they been supported by more facts and figures.

Industry Learns a Lesson

THREE is a tendency at the moment for the publicists of research to outshine the practitioners, though, of course, the ranks of the publicists contain a goodly number of men who do research themselves or superintend it. There have been many proposals for improving the research set-up, and we should now like to think that some of the proposals have found acceptance and that plans have been made for their im-

plementation. One of the most encouraging trends, because it means that industry has learnt the lesson and realised the value of research, is the establishment of new research associations, several of which have been inaugurated during the past few months. Once a new research association has come into existence every effort has to be made to gain the widest possible support in the industry which it serves. In recruiting new members the argument "You cannot afford to stay out" is probably the most effective and we should like to draw attention to the way in which one such organisation is driving home that point. This particular research association is inviting firms to join it for a year without making any financial contribution. At the end of the year the firm can become a paying member, or can retire from membership, but in that time the scientists have a chance to show that research is indispensable to any concern that wants to progress. There can scarcely be a better method of demonstrating the benefits that accrue from research.

Government Patent Committee

THE appointment of the Board of Trade committee which is to study the operation of the Patent Laws has evoked an immediate response from several sections of the chemical industry. The Institution of Chemical Engineers has circularised its members inviting suggestions on the two points which are to receive prior consideration from the patent committee. The Institution has its own Patents Sub-Committee, consisting of Dr. H. J. Bush, Mr. M. B. Donald, Dr. H. Levinstein, and Mr. Heron Rogers, which will look into the suggestions before submitting evidence to the Government committee. THE CHEMICAL AGE understands that two other organisations—the Royal Institute of Chemistry and the Association of Scientific Workers—have made similar arrangements, and doubtless other bodies whose members have an interest in the way this branch of our laws works will also be putting forward their corporate point of view. Evidence on the first two points to be dealt with by the committee in its first interim report must be submitted by the end of August.

Status of the Fine Chemical Industry

Financial Position, Trends, and Potentialities

by S. HOWARD WITHEY, F.C.I., F.Comm.A., M.I.Ec.E.

SINCE September, 1939, the progress of scientific research, the development of medical services, and the expansion in chemical engineering and kindred processes, have resulted in the manufacture of many new products and preparations, and as the fine chemical industry has been primarily engaged in catering for the great demand for medicines and drugs, it is not surprising that the majority of the companies concerned have been able to demonstrate their ability to earn good profits, and to distribute satisfactory dividends to their shareholders.

The audited accounts of 25 companies operating in this field during 1941-42 showed that the net earnings for that period amounted to £2,695,635, and that balances brought in from previous accounts aggregated £1,231,707, or 45.7 per cent. of the net earnings. The sums actually paid out in the form of dividends totalled £2,164,334, or 80.3 per cent. of the combined earnings, while allocations to reserves and other smaller appropriations amounted to £424,159, or 15.7 per cent., the forward balances being increased by 4 per cent. to £1,338,849 or 49.7 per cent. of earnings.

In many instances, large sums have been paid to the Exchequer in the form of Excess Profits Tax, but the total net earnings of the same companies during the 1942-43 financial period amounted to £2,852,297, representing an increase of £156,662 in relation to the previous year. With the balances brought forward, the available total was £4,191,146, out of which dividends amounting to £2,157,125 were paid, equal to 75.6 per cent. of earnings, while reserves and other allocations received £543,414, or 19.1 per cent., leaving the forward balances £151,758 higher at £1,490,607. The majority of directors have been restricted in their operations by reason of war circumstances and the policy of rationing, but the demand for fine chemicals continues to expand, and the volume of export trade is being well maintained.

Aspro

During 1942-43, the gross earnings of Aspro, Ltd., amounted to £378,701, which figure is arrived at after providing for the estimated E.P.T. liability, and represents an increase of £9456 in relation to 1941-42. The allocation to depreciation was raised from £5458 to £8239, and after charging directors' fees, and £155,000 for income tax, and providing a special grant of £10,000 to the pension fund, this company has been

able to report a net profit of £102,720. This compares with £101,775 for the preceding twelve months, and has enabled the rate of dividend on the ordinary capital to be maintained at 25 per cent., and the forward balance to be increased by £1470 after transferring the sum of £25,000 to the general reserve. The company started in 1935, and a strong position has been built up by its well-known medicinal preparation in spite of the many restrictions. The entire authorised capital of £1,000,000 has been issued, consisting of £500,000 in the form of 5½ per cent. cumulative preference stock—the dividend on which is paid half-yearly in June and December—and £500,000 in ordinary stock, the final account being made up as follows:—

| | £ |
|--------------------------------------|-----------------|
| Brought forward from 1941-42... | 18,842 |
| Net Profit: year ended June 30, 1943 | ... 102,720 |
| Disposable Balance | £121,562 |
| 5½ per cent. Dividend on £500,000 | £27,500 |
| Cumulative Preference Stock | 13,750 |
| Less income tax at 10s. in the £ | 13,750 |
| 25 per cent. Dividend on £500,000 | £125,000 |
| Ordinary Stock | 62,500 |
| Less income tax at 10s. in the £ | 62,500 |
| Transferred to General Reserve | 25,000 |
| Carried forward to 1943-44 | 20,312 |
| | £121,562 |

The balance sheet shows goodwill and trade-marks at £800,000, while the property and plant, etc., appear at £49,444. During the year, the rights in several countries to use special methods of packing, including the necessary machinery, were acquired through a subsidiary; consequently, the company's investments in subsidiaries have increased by £80,000 and now amount to £107,650. Current assets have expanded by £221,793, and although the current liabilities are higher than a year ago (owing mainly to increased provision for taxation) the liquid surplus at the balancing date was £422,218.

During the past five years, the ordinary 5s. stock units have fluctuated between 7s. 6d. and 20s. 7d., as follows:—

| | 1939 | 1940 | 1941 | 1942 | 1943 |
|---------|------|-------|-------|------|------|
| Highest | 14.3 | 13.10 | 15.9 | 16.3 | 20.7 |
| Lowest | 8.9 | 7.6 | 11.10 | 14.0 | 14.9 |

At the time of the annual meeting, in October, 1943, these units were quoted around 19s. 3d. Since then they have increased to 20s., at which price the actual return is 6½ per cent., and during the same period the preference £1 units have risen

from 22s. 6d. to 23s., and give an ample secured yield of 4½ per cent.

Beecham Maclean Holdings

In 1938 Beecham Maclean Holdings, Ltd., was formed to acquire from Beechams Pills, Ltd., all the ordinary shares of Macleans, Ltd., manufacturing chemists and owners of all the shares of Fynnon, Ltd. The last report covered the nine months' operations to March 31, 1943, and disclosed a trading profit of £395,860, which compares with £304,923 for the previous twelve months. Part of the E.P.T. liability of the subsidiaries has been borne by the parent company—Beechams Pills, Ltd.—and the ordinary dividend was raised from £9000 to £89,250. After charging taxation, the net earnings of Beecham Maclean Holdings, Ltd., amounted to £195,283, which compares with £149,594 in 1941-42, and after allocating £8,902 to preference redemption, the forward balance has been increased by £391. This company has an authorised capital of £2,950,000, of which a total of £2,730,919 is in issue, comprising £1,324,076 in the form of 5 per cent. cumulative redeemable preference £1 shares; £556,843 in 5½ per cent. cumulative redeemable preference £1 shares; and £850,000 in ordinary 5s. shares. The preference shares have redemption funds operating annually by purchase or by drawings, and final redemption will be on or before July 1, 1960, and July 1, 1961, respectively.

| | £ |
|--|----------|
| Brought forward from 1941-42... | 2,064 |
| Net Profit : 9 months ended March 31, 1943 | 195,283 |
| | <hr/> |
| Carried forward to 1943-44 | £197,347 |

During the past few months, the 5 per cent. preference shares have risen from 20s. 8d. to 21s. 8d., while the 5½ per cent. preference have increased from 21s. 6d. to 23s.

Beechams Pills

The report issued by the directors of Beechams Pills, Ltd.—the parent of the great group of proprietary medicine companies over which Mr. Philip Hill presides—covering the year's operations to March, 1943, disclosed a new high record in trading profit at £1,321,306. This figure includes the sum of £51,512 for profit on the sale of investments, and compares with £1,175,646 for 1941-42. The balance of net profit amounted to £452,457, representing an increase of £56,076, enabling the rate of dividend on the deferred capital to be raised from 28½ per cent. to 30 per cent. Registered in

1928, the company is concerned with a large number of proprietary and patent medicines, and enjoys an extensive overseas business. The authorised capital is £4,000,000, of which a total of £3,812,500 has been issued and fully paid, consisting of £2,000,000 in the form of 10 per cent. cumulative preferred shares of £1; £300,000 in 5 per cent. redeemable cumulative preference shares of £1, and £1,512,500 in deferred shares of 2s. 6d. each. After transferring the sum of £10,484 to the development reserve, the forward balance has been increased by over £100,000, the following being a summary of the final figures for 1942-43:—

| | £ |
|--|----------|
| Brought forward from 1941-42... | 144,232 |
| Net Profit : year ended March 31, 1943 | 452,457 |
| | <hr/> |
| Carried forward to 1943-44 | £596,689 |

10 per cent. Dividend on £2,000,000 Cumulative Preferred £1 shares, less tax ... 102,500
5 per cent. Dividend on £300,000 Redeemable Cumulative Preference £1 shares, less tax 7,594
30 per cent. Dividend on £1,512,500 Deferred shares of 2s. 6d., less tax ... 231,286
Transferred to Development Reserve ... 10,484
Carried forward to 1943-44 ... 244,825

£596,689

Interests in subsidiaries have increased from £4,714,221 to £5,108,227, and the large expenditure on development is reflected in the figure of goodwill which stands on the balance sheet at £938,789. The floating assets total £534,274, and the various reserves amount to £1,603,384.

During the past four years, the preferred £1 shares have fluctuated between 21s. and 42s. 3d., and the deferred 2s. 6d. shares between 6s. 3d. and 18s. 3d., thus:—

| | 1940 | 1941 | 1942 | 1943 |
|-----------|------|------|------|------|
| Preferred | 34.0 | 37.0 | 39.0 | 42.3 |
| Highest | 34.0 | 37.0 | 39.0 | 42.3 |
| Lowest | 21.0 | 31.0 | 35.0 | 37.4 |
| Deferred | | | | |
| Highest | 9.0 | 11.3 | 13.6 | 18.3 |
| Lowest | 6.3 | 7.6 | 9.6 | 12.6 |

At the recent price of 42s. 3d., the preferred gave a return of 4½ per cent., and at 18s. 3d., the deferred shares yield nearly 4½ per cent., and the dividend is well covered.

Boots Pure Drug Co.

The marketing of side lines often develops avenues to increased business, and during the twelve months ended March 31, 1943, the turnover of Boots Pure Drug Co., Ltd., registered a new high record. The tax liability has not been disclosed, but after making all necessary provisions, the trading profit and other income amounted to £1,067,462, representing an increase of £42,369 in relation to the preceding year. After debiting repairs and renewals, depreciation, A.R.P. expenditure, war risks insurance, and directors' fees, etc., the net earnings totalled £643,345, which compares

with £622,784 for 1941-42, and enabled the allocation to the special taxation reserve to be increased from £100,000 to £150,000. With its manufacturing laboratories, excellent research organisation, and centralised management of well over 1200 retail shops, the company occupies an outstanding position in the pharmaceutical trade, selling its own products and thousands of proprietary and branded articles, and transacting an enormous turnover in chemists' sundries. A total capital of £3,000,000 ranks for dividend, made up of seven classes of preference and preferred ordinary shares amounting to £1,400,000, and £1,600,000 in the form of ordinary shares of 5s. denomination, upon which a dividend of 24 per cent. has been maintained for the third successive year. After placing £40,000 to the freehold property reserve, and £1516 to the war contingencies and damage reserve, the forward balance shows an increase of £3079:

| | £ |
|--|-----------------|
| Brought forward from 1941-42 | 220,645 |
| Net Profit : year ended March 31, 1943 | 643,345 |
| Disposable Balance | <u>£863,990</u> |
| Transferred to Special Taxation Reserve | 150,000 |
| 7 per cent. Dividend on £10,000 "A" Cum. Pref. £1 shares | 700 |
| 6 per cent. Dividend on £25,000 "B" Cum. Pref. £100 shares | 1,500 |
| 6 per cent. Dividend on £100,000 "C" Cum. Pref. £1 shares | 6,000 |
| 7 per cent. Dividend on £120,000 "A" Non-Cum. Prefd. Ord. £1 shares | 8,400 |
| 7 per cent. Dividends on £245,000 "B" Non-Cum. Prefd. Ord. £1 shares | 17,150 |
| 7 per cent. Dividend on £400,000 "C" Non-Cum. Prefd. Ord. £1 shares | 28,000 |
| 7 per cent. Dividend on £500,000 "D" Non-Cum. Prefd. Ord. £1 shares | 35,000 |
| 24 per cent. Dividend on £1,600,000 ordinary 5s. shares, less tax | 352,000 |
| Transferred to Freehold Property Reserve | 40,000 |
| Allocated to War Contingencies and Damage Reserve | 1,516 |
| Carried forward to 1943-44 | <u>£863,990</u> |

During the year, the fixed assets were increased by £189,911, and excluding those which are the subject of war damage claims the total appears on the balance sheet at £5,789,036, of which £3,483,668 is in the form of freehold property. Including £1,080,503 owing by subsidiaries, the current assets aggregate £3,054,141, as compared with £2,739,277 at the close of the preceding year. The 6 per cent. "C" preference shares were recently quoted at 28s., 3d., and the 7 per cent. "C" preferred at 32s., and at 33s. the 7 per cent. "A" preferred give a return of 4½ per cent. During the past five years the ordinary shares have fluctuated between 27s. 9d. and 47s., as follows:—

| | 1939 | 1940 | 1941 | 1942 | 1943 |
|---------|-------|------|------|------|------|
| Highest | 47.0 | 44.9 | 40.6 | 40.6 | 44.3 |
| Lowest | 31.10 | 27.9 | 32.9 | 30.6 | 38.4 |

In July last, the ordinary were quoted

at 41s., since when they have risen to 42s. 6d., at which price the actual yield works out at less than 3 per cent. and reflects the strong financial position of the company and its post-war prospects of further expansion.

British Drug Houses

Although the full report of British Drug Houses, Ltd., for 1943, was not yet to hand at the time of writing, the earnings have increased and the rate of dividend on the ordinary capital has been raised from 2 per cent. to 3 per cent. This company is an amalgamation of several manufacturing chemists and wholesale druggists, with interests in Australia and Canada, and as its standard profit is based on the figures for 1936 and 1937 the liability to E.P.T. is heavy. After debiting taxation, the gross earnings amounted to £52,957 in 1942, compared with £44,395, and the balance of net profit was £22,591 as against £23,402, enabling £10,000 to be placed to reserve and a credit of £17,936 to be carried forward. The entire authorised capital of £750,000 has been issued and fully paid, comprising £350,000 in the form of 5 per cent. cumulative preference £1 shares—the dividend on which is paid quarterly—and £400,000 in ordinary £1 shares. During the past five years, the preference shares have fluctuated between 18s. 10d. and 25s., and the ordinary shares between 18s. and 26s. 9d.

| | 1939 | 1940 | 1941 | 1942 | 1943 |
|---------|-------|------|------|------|------|
| Highest | 22.6 | 22.6 | 22.6 | 23.0 | 25.0 |
| Lowest | 19.10 | 20.3 | 20.6 | 20.6 | 22.6 |

Ordinary

| | 1939 | 1940 | 1941 | 1942 | 1943 |
|---------|------|------|------|------|------|
| Highest | 23.1 | 25.3 | 26.3 | 26.9 | 22.6 |
| Lowest | 20.0 | 19.3 | 21.6 | 18.0 | 19.0 |

Recently, the ordinary were quoted at 22s. 9d., and the preference at 25s.

W. J. Bush & Co.

The extension of the war to the Far East caused a cessation of supplies of certain raw materials, and deprived W. J. Bush & Co., Ltd., of some of its markets; nevertheless, very satisfactory results were recorded for 1942, the trading profit being shown at £153,304 after deducting an unstated amount for E.P.T. This compares with £160,818 in 1941, the balance of net profit being £73,676, as against £79,193, enabling the ordinary dividend of 10 per cent. to be maintained, and £12,426 to be added to the forward balance after placing £25,000 to reserve against plant and £5000 to reserve against freeholds. This company of manufacturing chemists, distillers of essential oils, and drug and perfumery raw material merchants has an authorised capital of £375,000, all of which ranks for dividend, i.e., £125,000 in the form of 5 per cent. cumulative preference £5 shares—the dividend on which is paid half-yearly in April and October, and requires £6250 gross—and

£250,000 in ordinary £1 shares. The last balance sheet showed fixed assets for £309,209, and shares in and loans and accounts with subsidiaries at £222,326, while the current assets totalled £1,026,979, including £203,713 in cash and £57,950 in tax reserve certificates. A few months ago, the preference shares were quoted at 5*1/4*d., and more recently at 5*7/16*, and at 5*3/8*. the ordinary shares give a return of nearly 4 per cent. The general reserve amounts to £300,000, and the 1943 figures are expected in August.

Eno Proprietaries

During the twelve months ended March 31, 1943, the gross earnings of Eno Proprietaries, Ltd., amounted to £274,779, representing an increase of £37,106 over the previous year's figure, and although taxation increased from £117,314 to £145,895, the balance of net profit was £8526 higher, and the directors were able to raise the ordinary dividend from 18 per cent. to 19*4/5* per cent. The company is a subsidiary of Beechams Pills, Ltd., and owns all the deferred ordinary shares of Prichard & Constance (Manufacturing), Ltd., and all the shares of numerous concerns, and the entire authorised capital of £2,000,000 has been issued and fully paid. This comprises £1,000,000 in the form of 5*1/2* per cent. cumulative preference £1 shares—dividend half-yearly in March and September—and £1,000,000 in ordinary shares of 5*8/10*—

| | £ |
|---|-----------------|
| Brought forward from 1941-42 | 36,424 |
| Set Profit : year ended March 31, 1943 | 126,384 |
| Disposable Balance | <u>£162,808</u> |
| 5 <i>1/2</i> per cent. Dividend on £1,000,000 Cumulative Preference £1 shares, less tax | 28,989 |
| 19 <i>4/5</i> per cent. Dividend on £1,000,000 ordinary 5 <i>8/10</i> shares, less tax | 97,000 |
| Carried forward to 1943-44 | 36,819 |
| | <u>£162,808</u> |

During the past three years the preference shares have fluctuated between 14*s. 6d.* and 22*s. 7d.*, as follows:—

| Preference | 1941 | 1942 | 1943 |
|------------|-------------|-------------|-------------|
| Highest | 20 <i>0</i> | 21 <i>2</i> | 22 <i>7</i> |
| Lowest | 14 <i>6</i> | 18 <i>9</i> | 20 <i>6</i> |

Recently, these shares were quoted at 23*s. 3d.* to yield about 4*1/2* per cent., and the dividend is covered more than four times.

Evans, Sons, Lescher & Webb

In 1941, the operations of Evans, Sons, Lescher & Webb, Ltd.—wholesale and export druggists and manufacturers of pharmaceutical chemicals, etc.—were effected by war circumstances, but in 1942 the gross earnings amounted to £54,853, representing an increase of £43,054, after charging E.P.T., consequently the balance of net profit rose from £2916 to £19,110 after allow-

ing £30,445 for income tax. This enabled the directors to distribute a dividend of 3 per cent. on the ordinary capital, and to place £5207 to the contingency reserve. The company directly controls Chas. Midgeley, Ltd., and has an authorised capital of £450,000, of which a total of £365,497 6*s. 8d.* is in issue, made up of £241,802 13*s. 4d.* in the form of 6 per cent. cumulative participating preference shares of 6*s. 8d.*, and £123,694 13*s. 4d.* in ordinary shares of 6*s. 8d.* After meeting the dividends, the forward balance was raised from £11,556 to £12,723, and recently the ordinary shares were quoted at 8*s. 3d.*, and the preference at 7*s. 10d.*, and it is likely that the 1943 accounts will show a further expansion in earnings.

P. H. Galloway

For the past four years, a dividend of 10 per cent. has been maintained on the 2*s.* ordinary shares of P. H. Galloway, Ltd.—wholesale chemists and druggists and hair-dressers' sundriesmen, etc.—and during 1943 the gross earnings of the company amounted to £38,623, representing an increase of £5219 in relation to 1942. After deducting taxation, including tax on profits to date, the result was a net loss of £3034, as compared with a profit of £19,822 previously, and consequently the forward balance has been reduced from £14,801 to £2021. The company exercises direct control over Jules Frères, Ltd., and the entire authorised capital of £220,000 has been paid up, consisting of £100,000 in the form of 7*1/2* per cent. cumulative preference £1 shares—the dividend on which is paid in June and December—and £120,000 in ordinary 2*s.* shares which were recently quoted at 3*s. 9d.* and offer scope for capital appreciation.

Genatosan

As the proprietor of several well-known preparations, including "Sanatogen," "Genasprin," and "Formamint," Genatosan, Ltd., was able to report a trading profit of £113,271 for the twelve months ended June, 1943, and although this represents a decline in relation to the previous year, the position was largely adjusted by a smaller charge for taxation, with the result that the balance of net profit was only £551 smaller at £23,666. This enabled the ordinary dividend of 25 per cent. to be maintained for the fifth successive year and a credit balance of £18,519 to be carried forward to the next account. The company is controlled by Anglo-Continental Guano Works, Ltd.—a subsidiary of Fisons, Ltd.—and controls Fissan, Ltd., with an authorised capital of £288,000, of which £238,000 is in issue, viz.: £38,000 in 14 per cent. cumulative pre-preference 2*s.* shares; £100,000 in 8 per cent. cumulative prefer-

ence £1 shares; and £100,000 in ordinary shares of 1s. denomination :—

| | £ |
|---|----------------|
| Brought forward from 1941-42 ... | 14,013 |
| Net Profit : year ended June 30, 1943 ... | <u>23,666</u> |
| | <u>£37,679</u> |

| | |
|---|--------|
| 14 per cent. Dividend on £38,000 Cumulative Pre-Preference 2s. shares ... | £5,320 |
| <i>Less</i> income tax at 10s. in the £ ... | 2,660 |

| | |
|---|--------|
| 8 per cent. Dividend on £100,000 Cumulative Preference 1s. shares ... | £8,000 |
| <i>Less</i> income tax at 10s. in the £ ... | 4,000 |

| | |
|---|---------|
| 25 per cent. Dividend on £100,000 ordinary 1s. shares ... | £25,000 |
| <i>Less</i> income tax at 10s. in the £ ... | 12,500 |

| | |
|--------------------------------|----------------|
| Carried forward to 1943-44 ... | 18,519 |
| | <u>£37,679</u> |

The fixed assets stand at £346,017, and goodwill at £100,000, while the current assets amount to £310,097. Recently, the 8 per cent. preference were quoted around 27s. 6d., and the ordinary shares at 6s. 6d.

Griffiths Hughes

Registered in 1934, Griffiths Hughes Proprietaries, Ltd., is a holding company owning all the issued shares of E. Griffiths Hughes, Ltd., manufacturing chemists and owners and manufacturers of many proprietary lines including "Karswood" preparations and "Kruschen Salts," etc. During the financial year to March, 1943, the operating company realised a profit of £222,915, which compares with £223,414 for 1941-42 and £158,514 for 1940-41, and as the charge for taxation was £9500 less at £122,500, the dividend of 44 per cent. tax free was repeated, and £25,623 added to the forward balance. During the same period, the dividend income of the parent company was £75,834, and after adding interest and income tax recovered, and providing for fees and general expenses, the balance of net profit is £74,355, which represents an improvement of £328 in relation to 1941-42 and £23,511 as compared with 1940-41. The paid-up capital is £2,500,000, consisting of £1,000,000 in 5½ per cent. cumulative preference £1 shares—dividend half-yearly in June and December—and £1,500,000 in ordinary £1 shares on which a dividend of 6 per cent. has been repeated, leaving the carry-forward £1,855 higher, thus :—

| | £ |
|--|---------------|
| Brought forward from 1941-42 ... | 6,131 |
| Net Profit : year ended March 31, 1943 ... | <u>74,355</u> |

| Disposable Balance | £80,486 |
|--------------------|-----------------|
| | |

| | |
|---|---------|
| 5½ per cent. Dividend on £1,000,000 Cumulative Preference £1 shares ... | £55,000 |
| <i>Less</i> Income tax at 10s. in the £ ... | 27,500 |

| | |
|--|---------|
| 6 per cent. Dividend on £1,500,000 Ordinary 1s. shares ... | £90,000 |
| <i>Less</i> income tax at 10s. in the £ ... | 45,000 |

| | |
|--------------------------------|----------------|
| Carried forward to 1943-44 ... | 7,986 |
| | <u>£80,486</u> |

Fixed assets are shown on the operating company's balance sheet at £120,825 after depreciation, and during the year the interests in subsidiaries increased from £162,003 to £180,394 as the result of outlay in new business which is expected to develop satisfactorily and has entailed the establishment and staffing of research laboratories. On the balance sheet of the parent company, the holding of shares in the operating company is shown at £2,499,993, as before. During the past five years, the preference shares have fluctuated between 6s. and 22s. 3d., and the ordinary between 3s. 9d. and 26s. :—

| Preference | 1939 | 1940 | 1941 | 1942 | 1943 |
|-------------|------|------|------|------|------|
| Highest ... | 13 6 | 13 0 | 15 0 | 21 4 | 22 3 |
| Lowest ... | 6 0 | 8 9 | 8 9 | 13 0 | 19 6 |

| Ordinary | 1939 | 1940 | 1941 | 1942 | 1943 |
|-------------|------|------|------|------|------|
| Highest ... | 10 6 | 10 9 | 11 9 | 20 3 | 26 0 |
| Lowest ... | 3 9 | 4 9 | 5 8 | 8 7 | 18 0 |

Recently, the preference were quoted at 22s. 9d. and the ordinary at 28s. 3d.

F. W. Hampshire & Co.

This company started in 1927, and manufactures food specialities and medical preparations, the paid-up capital consisting of £75,000 in 7½ per cent. cumulative preference 10s. shares; £40,000 in ordinary 5s. shares; and £41,250 in "A" ordinary shares of 5s. The accounts are made up to December 5, and for 1942-43 the trading profit totalled £223,791, or an increase of £3702 in relation to the preceding year, and after charging taxation and allocations to the staff fund, the balance of net profit was £53,044. This enabled the ordinary dividend of 40 per cent. to be repeated, and the sum of £25,000 to be transferred to the general reserve, compared with £20,000 previously. This left the forward balance £2870 higher, and comparative figures for the past two years are given below :—

| | 1942/43 | 1941/42 |
|----------------------------|---------|---------|
| | £ | £ |
| Trading Profit | 223,791 | 220,089 |
| Taxation | 164,255 | 147,375 |
| To Staff Fund | 2,050 | 2,050 |
| Net Profit | 53,044 | 65,555 |
| To General Reserve | 25,000 | 20,000 |
| Carried forward | 8,118 | 5,248 |
| Ordinary Dividend | 40% | 40% |
| Bonus | 10% | 10% |

The preference shares recently quoted at 15s. 9d. at which price the actual return is over 4½ per cent.

(To be continued)

Further expansion after the war of the Cooper Technical Bureau, the research organisation of Cooper, McDougall & Robertson, Ltd., was envisaged in the vice-chairman's speech at the company's annual meeting last week. He welcomed the sympathetic interest which the Government is showing to research in all industries.

A CHEMIST'S BOOKSHELF

THE CHEMICAL ANALYSIS OF WATERS, BOILER- AND FEED-WATERS, SEWAGE, AND EFFLUENTS. By Denis Dickinson, M.Sc., F.R.I.C. London: Blackie. Pp. 140. 6s.

The needs of the industrial chemist have been the first consideration of the author in this valuable and practical addition to Blackie's "Technique" series of handbooks. A member of the Royal Sanitary Institute, Mr. Dickinson has the advantage of working experience, and his book, which he states to have begun in the form of a practical notebook, bears the hallmarks of actual experience. Valuable notes from his own personal observations are interspersed among the descriptions of standard water-analysis methods. Current literature, however, has by no means been neglected, and such recent advances as methods for tannin determination, and the colorimetric determination of chromium in drinking-waters, are duly recorded. Emphasis is laid in the right direction, too; in the case of chromium, for example, it is pointed out that little is known concerning the toxicity of chromium in potable water, and the importance of estimating its possible leakage from factory effluents into drinking supplies is therefore essential. Due prominence is given to B.O.D. (biochemical oxygen demand) as a guide to water quality.

The author never forgets that he is writing for those employed in works laboratories; he has, therefore, even at the expense of omitting many of the known means of analysis, avoided those methods which entail the use of expensive apparatus. As he points out, those who possess, say, a photoelectric colorimeter in their laboratory are presumably familiar with its use.

ENGINEERING MATERIALS ANNUAL. London: Paul Elek (Publishers), Ltd. Pp. 106. 8s. 6d.

One of the toughest jobs facing the technologist is the work of keeping abreast with the literature on his special subject or subjects. Everything which helps to assist him in the performance of that duty is to be welcomed, as for instance, the excellent annual reports published by the Society of Chemical Industry and the Chemical Society. In the same direction the annual review numbers brought out by technical journals like THE CHEMICAL AGE are valuable. The "Engineering Materials Annual," edited by Mr. H. H. Jackson, is a new venture in the same field, attempting, as it does, to review the latest progress and trends of advance. The present is certainly a difficult time in this respect, for though one can survey with reasonable comprehensiveness the recent literature, an adequate survey of all recent advances is out of the question for reasons of security.

This point is several times admitted in this book; for instance we find Dr. Yarsley in his chapter on plastics making a quite spirited protest over the way America was allowed to publish material about Grenade No. 69, a device developed in Britain and Canada, whereas the British technical press was unable to do so until the story had appeared in America. The individual chapters of this annual are contributed by specialist writers; in addition to Dr. Yarsley, there are for instance Dr. Foxwell on solid fuels, Dr. Dent on gaseous fuels, Mr. Trobridge on synthetic and natural rubber.

To this reviewer certain of the chapters seem a little too brief to be useful; for example, there are only 25 lines of text about zinc, an allocation of print which is only just big enough to set out the eleven references it contains, while those references when listed with details of journal, author, etc., take up more than two pages. One of the best-designed articles in the book is that by Dr. W. J. Rees on "Refractories," and it might be a good idea if the editor of the volume were to study that article closely, then to examine the presentation of the Applied Chemistry Reports of the S.C.I. and to incorporate in his next volume the best features of both. He has made a courageous experiment in getting together this review annual, but he must recognise that he has left himself plenty of room for improvement.

PHOSPHATE AND SUPERPHOSPHATE. By A. N. Grey. London: H. K. Lewis. Pp. 416. 21s.

This is the second edition of a book first published in 1930, the object of which was to provide a full statistical history of the phosphate and superphosphate industry. There is no lack of statistical data in the present volume, and from the 155 tables that form an appendix there should be no difficulty in ascertaining how much phosphate rock was mined, processed, imported or exported in any one year during the last third of a century by any particular country. On such matters the book, published under the auspices of the International Superphosphate Manufacturers' Association, is to be considered the authority. By amplifying the information contained in the non-statistical portion of the work there is no doubt that the author has increased its general usefulness. A great deal of attention is paid to superphosphate manufacture, while the production of double superphosphate, calcium metaphosphate, ammonium phosphate and basic slag is adequately covered. The fertiliser manufacturer will find it a valuable reference book, as will those who are interested in the historical details of the industry's development since the days of Lawes's experiments in the 1840's.

New Synthesis of Vitamin C Based on Beet Pulp

THE process in present use for making vitamin C is laborious, and expansion of present manufacturing facilities requires large quantities of critical materials. Therefore, an investigation of other methods has been made in America. The method employed simultaneously by Reichstein and by Haworth and Hirst, in the first synthesis of vitamin C, included the production of galacturonic acid from galactose, reduction to *l*-galactonic acid, oxidation to *l*-lyxose, conversion to *l*-lyxosone, addition of hydrogen cyanide followed by hydrolysis of the product and rearrangement to vitamin C. Although the method has been useful for the preparation of many analogues of vitamin C it has not been commercially practical.

Galacturonic Acid

Galacturonic acid is one of the more abundant plant materials; in the form of pectic substances it comprises approximately 30 per cent. of the dry pulp which remains after extraction of sugar from sugar beets, and a large part of the pulp from citrus fruits and apples. There is an almost unlimited source of material suitable for the preparation of galacturonic acid. A method for the separation of galacturonic acid in beet pulp was not heretofore available. Treatment of the pulp in water with "Pectinol" (an enzyme preparation used for the clarification of fruit juices) gave a water solution containing galacturonic acid corresponding to about 30 per cent. of the original pulp. The acid, however, was mixed impure and could not be crystallised from the solution. The calcium, sodium-calcium and sodium-strontium salts of the acid were found to be difficult to dissolve and to crystallise exceptionally well. By neutralising the hydrolysate with appropriate bases and evaporating the solution, crystalline salts of galacturonic acid were obtained in yields corresponding to about 18 per cent. of the dry beet pulp. Thus a simple method is now available for obtaining salts of galacturonic acid in any desired quantity.

Reduction and Oxidation

In the conversion of galacturonic acid to vitamin C it is necessary to reduce the aldehyde group of carbon 6 to an alcoholic group, and to oxidise either carbon 2 or 3 to obtain the unsaturated structure characteristic of vitamin C. Reduction of the aldehyde group to a CH_2CH group is a simple matter and was indeed part of the process originally used by Haworth and Hirst. The oxidation of carbon 2 and 3 is more difficult, but recently considerable progress has been made. Thus 2-keto-gluconic acid is now

made from gluconic acid by bacterial oxidation, and several methods have been devised for the oxidation of aldonic acids in general to 2-keto-aldonic acids.

Sodium calcium galacturonate obtained from beet pulp was reduced by hydrogen with a Raney nickel catalyst to sodium and calcium *l*-galactonates. The salts were converted to *l*-galactono-lactone and oxidised to methyl 2-keto-*l*-galactonate with sodium chlorate in the presence of vanadium pentoxide by the method of Pasternack and Regna. Treatment of the methyl ester with sodium methylate gave sodium ascorbate from which crystalline vitamin C was readily obtained. The process is relatively simple. Theoretically, 1 mole of vitamin C might be derived from 1 mole of galacturonic acid, or 0.7 part of vitamin C from 1 part of sodium calcium galacturonate. The yield of the crystalline vitamin was approximately 20 per cent. of the theoretical, and the yield of sodium calcium galacturonate from beet pulp was 18 per cent. Thus one ton of dry beet pulp would yield approximately 50 lb. (23 kg.) of vitamin C. Undoubtedly, the process will be improved so that ultimately it will compare favourably with processes now in commercial use.—*Chemical Engineering and Chemistry Newsletter* (issued by U.S. Office of War Information); abstract of paper delivered by H. S. Isbell to the April meeting of the American Chemical Society.

CHLORINE DIOXIDE

A new process for producing chlorine dioxide for industrial use was described by E. R. Woodward, G. A. Petroe, and G. P. Vincent, Mathieson Alkali Works, Inc., New York, at the meeting of the American Institute of Chemical Engineers held at Cleveland in May. By their method chlorine dioxide has been made available for bleaching flour, and for other industrial purposes.

In this process, sodium chlorite is treated with chlorine, and as a result, the following over-all reaction takes place:



In principle, the generator which is used consists of a vertical steel cylinder lined with stoneware or glass. It is partly filled with naked sodium chlorite. Chlorine and a large excess of air are fed in at the bottom of the cylinder. The highly diluted chlorine dioxide is carried out at the top by the air current. The paper describes a two-cylinder generator with the control, metering, and safety devices which are necessary for continuous operation.

French Chemical Industry

Capital Increases

THE Société des Matières Colorantes et Produits Chimiques de Saint-Denis, which is closely connected with the Kuhlmann group, shows a gross profit of 32 million francs for 1943. Net profit amounts to 13½ million francs, a decline of over 5 million francs on the previous year. The payment of a dividend of 42½ francs gross has been recommended. This company transferred its entire dyestuff production to the "Francolor" company which, as is well known, is a joint enterprise of the I. G. Farben and the Kuhlmann group. This participation stands on the books at 233 million francs. Plant, equipment, etc., total 19 million as against 17.5 million francs a year ago.

The leading French oil company, Compagnie Française des Pétroles, which owns on Government behalf the French holding in the Iraq Petroleum Company, decided to increase its share capital from 800 to 1200 million francs through the issue of 796,491 "B" shares, thus doubling the original share capital. This capital transaction has led to a strong demand on the Paris Bourse. It is being pointed out that this step was taken with a view to the company's post-war tasks in supplying the French market with oil products; French participation in the Iraq Oil Company is to be maintained in all circumstances.

According to recent reports received in this country, the Compagnie Centrale d' Hydrogénéation et de Synthèse has decided to issue 4 per cent. preference shares to the amount of 300 million francs. The company was formed in 1942 by the Vichy Government and a banking group under the leadership of the Banque de Paris et des Pays-Bas, the country's leading merchant bank, together with the Béthune coal-mining company. The objective of the new enterprise was the production of synthetic fuels based on the hydrogenation of lignite. The original share capital totalled 80 million francs, 24 million of which were subscribed by the Government. Plant was to be erected in the lignite district in the Fuveau Basin (Aix-en-Provence), and German technical processes were to be used. At the time, it was estimated that the completion of the plant, with annual capacity of 25,000 tons of synthetic petrol and of 25,000 tons of methanol, would require three years. No clear line emerges from comments on the above capital transaction which occurred almost simultaneously with the capital increase of the Compagnie Française des Pétroles. It is noted that the rate of interest is above that of French State bonds and some commentators see in that step a preliminary for the future expansion of the production of synthetic fuels in France.

Hoffmann-La Roche

Raw-Material Shortage

THE report of F. Hoffmann-La Roche & Co., of Lausanne, for 1943 points out that the steady decline in Swiss foreign trade has not yet had any pronounced effects on the company's results. Difficulties of raw-material supply due to the war were mitigated by the assistance of the federal authorities; and the company even succeeded in increasing its stocks of essential basic raw materials. However, for the first time, in spite of an increased demand for the company's products, the goods produced were not entirely disposed of; this is said to be due to the ever-increasing difficulties in the export trade. Nevertheless, the board decided to carry on both with its policy of expansion, and with an intensification of research work.

The balance total, at the end of 1943, is shown at 28.25 million Swiss francs, a decline of 175,000 francs on the year. Net profit is slightly up at 3,679,667 as against 3,635,661 in 1942; a dividend of 40½ francs has been declared per share and participating certificate. Provision for the pension funds is one million francs; reserves stand at four millions. Installations, land, and patents are shown at nominal value, a fact which represents the hidden strength of this company. Stock increased by 3.52 million francs to 10.86 million, as a result of purchases of raw materials; cash is down to 1.58 million against 5.66 million; cash at bank totals 4.59 compared with 5.17 million francs. A notable feature is the steep increase in the company's investments, the book value of which stands at 2.15 million francs, compared with a mere 7000 francs in 1942.

ASLIB TRAINING COURSE

The Association of Special Libraries and Information Bureaux is preparing to hold, for the second year, a week's intensive emergency special library training course in London, in August next. The syllabus for this course will be the same as for Aslib's ordinary twelve-week course, but it is again emphasised that these short courses cannot give anything like full instruction in library methods. They are intended rather as wartime emergency courses and as refresher courses for those who wish to revive their library technique. The fee for the twelve lectures is five guineas. Attendance at these courses is not confined to members of the Association, and anyone who is interested should write for further particulars and an enrolment form to the General Secretary, Aslib, 31 Museum Street, London, W.C.I.

Chemicals in South Africa

Circumventing the Salt Shortage

From Our Cape Town Correspondent

In order to alleviate the serious position created in South Africa by the acute shortage of locally produced salt, arrangements have been made to import a substantial tonnage from sources outside the Union, states a bulletin of the Director-General of Supplies. The current salt production season in South Africa is already past its peak, and throughout recent months producers have been hampered by excessive rainfall. The object of importing a supply of salt is primarily to tide over industrial users and stock farmers until next season. Industrial users who require substantial quantities of salt in bulk will be able to purchase through the supply organisation. The imported salt will be fit for industrial, stock feed, and culinary purposes, but those food industries needing specially high grade salt are being advised to continue to rely on local production. Arrangements have also been made for the shipment of a quantity of dairy and table salt from the United Kingdom, and the possibility of acquiring additional quantities of salt from the Red Sea area is under consideration. Emphasis is laid on the fact that these arrangements have only been concluded with much difficulty, and consumers are being asked to use salt as sparingly as possible.

New Adhesives

Two new glues have recently been developed in South Africa. One is a "60-minute" powdered glue of interest to furniture manufacturers. In the past, pressing flat or bent members required from 3 to 6 hours, but with this glue it can be done in an hour in the case of cold pressing and in two to four minutes when hot pressing is available. The other line is a liquid glue with high initial tackiness and strong bonding power. It is ready for use, obviating soaking and heating. At the moment it is packed in bulk, but it is hoped later to market it in retail packings.

Insecticides

The present shortage of nicotine insecticides in South Africa has revived the idea of manufacturing such preparations in the Union. Nicotine for making such insecticides is obtained from the stalks of the tobacco plant, but some of the difficulties in the way of its production have still to be overcome. Efforts are also being made to increase the import of such insecticides, as they are urgently needed by fruit farmers. Both nicotine and lead arsenate, which is also used extensively by citrus farmers and others, are now subject to control, as laid

down in the consolidated regulations of the Controller of Industrial Chemicals published in the Government Gazette.

The use of pyrethrum in flour or powder form, except under permit issued by the Controller of Chemicals, has been prohibited in South Africa. This prohibition does not apply to the use of pyrethrum for the manufacture of any extracts suitable for the destruction of malarial mosquitoes.

Oil-Treatment Plant

A Johannesburg firm has designed and manufactured a new type of self-contained oil-treatment plant. A novel filter medium is employed which gives a fineness of filtration comparable with that obtained with edge-type filters. In this unit the mixture of oil and clay is heated under pressure in a closed chamber, the clay being given its maximum absorptive action while the oxidation of oil is simultaneously prevented. One of the units made is designed to treat oil in batches of seven or eight gallons, the whole action being automatic. The heating is electric and is thermostatically controlled. The plant is made entirely of South African materials and uses a mixture of local active earths for treating the oil.

A Durban firm is manufacturing an anti-corrosive protective coating for application to steel which is exposed to moisture under 66°C. or to hot gases up to 315°C. The coating will resist cold water, whether fresh or salt, acid fumes, acid and alkali solutions of moderate strengths. It has been specially designed for application to the stern parts, hull, propellers, water tanks, deck machinery, bilges, and bulkheads of ships. It has also been found excellent when applied to the interior of drinking-water tanks. Its acid-resisting qualities have been tested thoroughly and recommended for battery cradles. The Admiralty, after severe tests, have given it a satisfactory report.

Home and Imported Phosphate

It is expected that this year South Africa will import 200,000 tons of rock phosphate from North Africa. This will only yield sufficient fertiliser for half the country's needs. It is being urged that the Government subsidise the local mining of phosphates. There are several fairly good deposits of phosphate in the Transvaal. These were worked some years ago and the treated product sold to farmers as fertiliser, but it failed to meet the competition of the Moroccan product. At the present time, however, these deposits could serve to make up some

of the current deficiency in fertilisers. It was reported that other rich deposits of phosphates have been located in South Africa under the intensive prospecting that has taken place during the last four years, but only those at Langebaan, 45 miles from Cape Town, are at present being worked. The refining here is being done by the newest methods, but the resultant product will be economically sound only while prices are high and imports at a low level.

As a result of a recommendation by a Government committee, the South African coal deposits may be surveyed to determine what supplies are available for hydrogenation. When the tests start they will be carried out on an extensive scale. It is doubtful whether this research will be of value in the present war. Although petrol is rationed in South Africa, very little use has been made of producer-gas or of substitutes for petrol. In the last war a motor spirit was made from cane spirit and other compounds, and there has always been a Natal synthetic product on the market. A number of types of motor spirit made from locally produced ingredients have been recommended by the Fuel Research Institute in Pretoria, but no manufacture has started. It has been suggested that a compulsory mixing of petrol and power alcohol would make present stocks of petrol go further, but the Government is not sympathetic, particularly as the present maize shortage means that one source of power alcohol is lacking.

Shark-Liver Oil

Shark-liver-oil production in the Union is now on a big scale. A large quantity is being exported and supplies have been sent through the Red Cross to the stricken people of Greece. According to Dr. C. von Bonde, Union Director of Fisheries, these oils have proved of the greatest medical benefit in the Union in the absence of cod-liver and similar oils which were formerly imported. These fish oils were produced for many years before it was discovered that sharks yielded a more potent oil. All this fish oil is now sent to America to be processed for the Red Cross, and the American Red Cross then send it to Geneva.

Industrial Alcohol Plant

It is understood that a commission has been formed to advise on the erection and management of a plant to be erected by the Government for the manufacture of industrial alcohol in Southern Rhodesia. In the last estimates in the Southern Rhodesia Parliament £90,000 was provided for distilling plant. It is hoped that the plant will be capable of dealing with various kinds of raw materials, such as molasses, sweet potatoes, maize, etc., and the development of the commission into a public

utility company with statutory powers is envisaged. Although the vote for this plant was passed some time ago, so far little of it has been expended, one of the difficulties being to secure the import of the machinery.

Kenya's Minerals

The exigencies of war are leading to the development of Kenya's mineral resources. Output of non-precious minerals this year should be worth £66-70,000 and this will offset considerably the loss to the colony in the contraction of the gold industry. Machinery from the gold mines is finding new uses; for instance, in one case machinery previously working on gold has been converted and used for grinding Kisii soapstone into a substitute for talc, while gold-mining equipment at Kakamega contributes to the manufacture of asbestos cement boards, the asbestos being mined in West Suk. Close to the Tana River, near the Thika-Garissa road, gypsum is obtained and used for the local manufacture of plaster-of-paris; a small amount is made up into blackboard chalk for Kenya's Education Department. Considerable quantities of diatomite are now being produced in the colony, and the bentonite won from the neighbourhood of the Tana River is being used as a bond for moulding sand in foundry work.

The East African Industrial Board is using locally-produced kyanite for the manufacture of fire bricks, locally-produced kaolin in the manufacture of pottery, and are being supplied by the Macalder mines, South Kavirondo, with pyrites for the local manufacture of sulphuric acid. Lime is being produced in considerable quantities both for agricultural and building purposes. Manganese, sufficient to satisfy local requirements for paint manufacture, has been produced by the Mines Department, which also did considerable work to determine the most suitable treatment for a graphite deposit at Tsavo which is now being developed.

CAROTENE FROM SWEET POTATOES

Recognising sweet potatoes as an important potential source of carotene, or pro-vitamin A, U.S. Government research workers have been investigating possible methods of large-scale extraction. One of these methods, employing acetone, gave a product of 90 per cent. purity in a yield of about 39 per cent. The acetone extraction was carried out in four or five stages, the first two serving to dehydrate the potato pulp but absorbing little carotene. The third and fourth stages, in which a larger volume of acetone was used, extracted most of the carotene which was subsequently crystallised out.

Centrifugal Separators

Some Recent Developments

SEVERAL improved types of centrifugal separators have appeared in recent years, and a number of changes have been made in the older types that render them, for the first time, available to industries in which the previous machines would not properly do the work. One example is a high-efficiency, high-speed, centrifugal which has the ability to eject solids while it is operating. Merely by turning a lever, the solids in the bowl can be discharged while the machine is at full speed. Electric controls may be supplied so that the cleaning operation occurs automatically at predetermined periods—for example, at 10- or 15-minute intervals. This type of machine is suitable for centrifuging applications where the bowl cake represents from 1 to 5 per cent. of the liquid to be processed and where the separating efficiency of lower-speed bulk centrifugals is inadequate. Liquid containing such a high percentage of bowl cake will so quickly clog the bowl of the usual type of high-speed centrifugal that labour for bowl cleaning is excessive and the operation is uneconomic. The separation of fish-oil from the press effluent in fish plants is an example of the type of job for which this machine is fitted.

Oxygen Removal

Improved equipment is available for the removal of dissolved and entrained oxygen from a liquid such as transformer oil, at the same time as moisture and impurities are also being separated from the oil. This centrifuge is so constructed that a high vacuum can be maintained within the frame. Impurities, and the major portion of any water that may be present, are retained in the centrifuge bowl, and the liquid discharges in a finely divided state into the frame where low atmospheric pressure is maintained. This vacuum further reduces the moisture content and removes oxygen, both entrained and in solution. Normal transformer oil contains approximately 3.5 per cent. dissolved oxygen. The centrifuge permits the restoration of high dielectric in such oil without contacting it with air, and further reduces the possibility of sludge formation by the removal of the air that is in solution. For continuous service, a special pump is used, so constructed that no air can at any time be drawn into the oil through the gland packing.

Continuous treating units are used to bring a reagent into intimate contact with the liquid to be treated, and then quickly and efficiently to separate the reaction products in a continuous manner. These are

suitable, e.g., for the acid treatment of mineral oil. The equipment is complete, and includes all the required proportioning, mixing, heating, and separating units, and the accessory controls, etc. The first step is a device which accurately proportions the amount of reagent to be mixed with the oil. The mixture then goes to a special mixer, which gives the proper agitation for the proper length of time, so that adequate reaction takes place and yet the material is not brought into such a condition that it cannot later be separated. The reacted mixture then passes into a special supercentrifuge which quickly and effectually removes the products of the reaction from the oil. The entire operation, from the time of the first contact of the reagent with the oil until the products of the reaction are removed from the oil, is complete in a few minutes. Where a temperature rise is required, a continuous heater is included. This continuous treating plan saves a great amount of floor area and tankage as compared with the usual batch-treating apparatus, and requires a smaller inventory of material being processed. Its principal advantage, however, is usually found in some unsuspected recovery or some unexpected feature resulting from very short treating time or very efficient separation. Continuous treating is sometimes followed directly by water-washing and vacuum-drying.

The modern laboratory centrifuge revolves at 50,000 r.p.m. and generates a centrifugal force of 62,000 times gravity. This compares with the centrifugal force of 6000 to 13,000 times gravity which is usual in commercial high-speed centrifugals, and with 200 to 1000 times gravity which is normal in bulk centrifugals (hydro-extractors, etc.).

Dewaxing Oil

A new type of high-efficiency, high-speed, centrifuge will continuously discharge a floating mass such as stearin or petroleum wash that will not flow out of a normal centrifugal bowl. A special draw-off tube is used to scoop out the waxy material, which is separated by means of the high centrifugal force and which forms a floating cake near the axis of the rotating bowl. The operation is continuous. This machine is in satisfactory commercial operation for the dewaxing of petroleum oil. The oil is first diluted with a solvent to decrease its viscosity and increase its gravity so that the wax will float. It is then chilled for the precipitation of the wax and is finally fed to the centrifuge. In the centrifuge

the wax is removed from the oil, giving a satisfactory wax-free oil. A percentage of oil remains in the wax discharge which is rediluted with solvent and re-centrifuged. A satisfactory oil-free wax is thus obtained.

The modern fully automatic bulk centrifuge will do what the normal good bulk centrifugal will do, but it does it automatically and requires no attendance for loading, rinsing, or unloading. Thus, it is the equivalent, from a labour standpoint, of a fully continuous centrifuge and is much more flexible in the uses to which it can be put. The basket is rotated on a horizontal axis, and the material is removed from the basket, after rinsing and drying, by an automatic unloader which operates while the basket is running at full speed. The entire time for removing the contents of the basket is about 10 seconds. The usual accelerating and decelerating periods are eliminated, as are the attendant high power requirements and supervisory labour. The output per machine-hour is greatly increased. By decreasing the size of the basket of this centrifuge, the r.p.m. can be increased without changing the factor of safety. Thus, the centrifugal force available is greatly increased, since the centrifugal force increases as the square of the r.p.m. This unit is particularly suitable for those jobs where the drying cycle is short, since the automatic mechanism can best be justified where its use is required at frequent intervals. For example, it has proved satisfactory for the drying and rinsing of ammonium sulphate.

The centrifugal equipment for water-washing and vacuum drying a liquid is of commercial value for oils containing, for example, a small amount of reagent such as caustic or acid, after refining. A new process provides, as a first step, a simple means for mixing water with the oil to wash out the traces of the reagent. As a second step the oil-water mixture is passed through a super-centrifuge for the removal of all but final traces of moisture. As a third step the oil is passed into a special vacuum drier, and practically all the residual moisture is instantly removed. The entire equipment is installed as a continuous unit with proper automatic controls for perfect operation without attendance. An example of a product on which this apparatus is used is the washing and drying of vegetable oil which has previously been refined by treatment with caustic.

The Ultra-Centrifuge

A new tool for scientific research is now available in the form of the ultra-centrifuge. This unit develops a much higher centrifugal force than even the laboratory machine just described. The laboratory super-centrifuge is suitable for continuous inflow and outflow of liquid in quantities

measurable in litres per hour, but the ultra-centrifuge is particularly developed for the examination of a very small sample, which is placed in a glass cell and rotated for a period of time. The sample can be observed while the machine is in operation. The ultra-centrifuge develops a centrifugal force of 300,000 times gravity, and even higher if desired. The rotor is operated in an almost perfect vacuum so that temperature change due to air friction is negligible. The rotor is driven by air pressure and is supported by an air bearing. This machine can be used for the determination of molecular weights of large complex molecules such as casein. It can also be used for the accurate determination of the particle size of colloidal suspensions, such as dyes. The rate of subsidence of the colloidal particles can be watched while the rotor is in operation, and, by photographing this rate, accurate control of a manufacturing process is permitted.

A specially built super-centrifuge has been developed which will produce cream so rich that it has the same consistency as butter, at a similar temperature. It contains the same amount of fat as does butter (86 per cent.), but the fat is in the dispersed emulsion phase and is, therefore, true cream and not butter. The special cooler consists of a brine-chilled, revolving, stainless-steel drum. This continuous chilling machine is so built that there is a minimum agitation of the product while it is being converted from fluid to plastic form. Though developed for the dairy industry, this centrifuge and cooler may be utilised in other fields.

CONGO QUININE

A factory for the production of quinine is to be erected on the shores of Lake Kivu, Belgian Congo, and it is hoped that it will be in production almost immediately. The necessary machinery and equipment were recently received from London, and it is intended that about 100 tons of Peruvian bark will be processed annually. This is the climax of a development begun soon after the Japanese took the Dutch East Indies, when large numbers of cinchona trees were planted on the Kivu Mountains. The Congo should soon be able to serve the African need for quinine and also to export large quantities.

The local authorities have also considerably increased the palm fruit plantations in the Congo and are ousting the pre-war primitive methods. It is expected that after meeting the needs of the Union of South Africa and the Belgian Congo itself, some 50,000 tons of palm oil a year will be available for export to Great Britain. Total export in 1938 was 74,000 tons.

Personal Notes

MR. R. B. PILCHER, for fifty years secretary of the Royal Institute of Chemistry, is retiring, probably in March of next year.

MR. S. D. KIRKPATRICK, editor of *Chemical and Metallurgical Engineering*, has been elected president of the Electrochemical Society of America.

DR. J. C. PATRICK, the chemist who discovered thiokol, has been elected chairman of the board of directors of the Thiokol Corporation of America.

SIR ROBERT ROBINSON was awarded the honorary degree of LL.D. at St. Andrews University at the graduation ceremony on June 30.

The Council of the Institution of Chemical Engineers has appointed MR. L. O. NEWTON as joint hon. secretary in succession to DR. A. J. V. UNDERWOOD, whose resignation we recorded recently.

MR. CECIL J. TAYLOR, manufacturing chemist, of Carlisle, is Independent Parliamentary candidate for the by-election at the Rusholme division of Manchester, polling on July 8.

MR. A. B. INGLIS, DR. C. H. KELLAWAY, M.C., F.R.S., MR. L. G. MATTHEWS and MR. J. RUSSELL, M.C., have been elected directors of the Wellcome Foundation, Ltd., DR. THOMAS DEWAR has been appointed secretary.

MISS MURIEL MACKAY and MR. W. F. WATSON were equal winners of the Center Gold Medal for Chemistry at Aberdeen University, while MR. J. D. BURNETT and MR. L. M. VALENTINE shared the Coutts Chemistry Prize.

MR. G. D. HUTCHINS, C.B.E., has retired from the secretaryship of the Woodall-Duckham Vertical Retort and Oven Construction Co. (1920), Ltd., and of Woodall-Duckham (1929), Ltd. He has been appointed a director of the latter company, and will continue in the service of the former in a consultative capacity. His successor as secretary is MR. N. G. LANG.

PROFESSOR W. P. WYNNE, D.Sc., F.R.S., F.R.I.C., Professor Emeritus of Chemistry in the University of Sheffield, has been elected to an Imperial College Fellowship at the Imperial College of Science and Technology. He was a student at the Royal College of Science 63 years ago, and later taught there as assistant professor of chemistry. In 1902-04 he was Professor of Chemistry at the Pharmaceutical Society's school, and from 1904 to 1931 he held the Sheffield chair. He has been Editor of the Journal, secretary, and president (1923-25) of the Chemical Society, and his Fellowship of the Royal Institute of Chemistry dates from 1887.

DR. H. J. ROWLEY, F.C.I.C., has been appointed chairman of the New Brunswick Resources Development Board, and DR. J. S. BATES, F.C.I.C., is a member. Both of these Montreal chemists are fully conversant with the chemical technology of forest-products development. Dr. Rowley has worked in the Pulp and Paper Research Institute of Canada, as well as in commercial paper-making laboratories; Dr. Bates is technical adviser to Price and Pierce, Ltd., the London timber merchants.

PROFESSOR E. L. HIRST, F.R.S., M.A., Ph.D., D.Sc., F.R.I.C., has been appointed as Professor A. R. Todd's successor to the Sir Samuel Hall chair of chemistry and directorship of the chemical laboratories at Manchester University. His appointment will, it is expected, take effect next January. His career began at Manchester, where he was assistant lecturer in 1923-24. The years 1924-26 he spent at Armstrong College, Newcastle, as lecturer in chemistry, and from there he went to Birmingham (1927-1935) as lecturer in organic chemistry, later becoming reader in chemistry there. His researches, mainly connected with the chemistry of carbohydrates and of vitamin C, led to his election as F.R.S. in 1934. At present he holds the post of Alfred Capper Pass Professor of Chemistry, University of Bristol. During the war he has undertaken work for the Ministry of Supply.

Obituary

MR. JAMES TRAFFORD ALLPASS, formerly of the Clayton Aniline Co., Ltd., died suddenly at Heaton Chapel, near Manchester, on June 28, aged 63.

MR. STANLEY HODGKIN, senior director of the Pulsometer Engineering Co., Ltd., Reading, Berks., died suddenly at Reading on June 29, in his 85th year.

COUNCILLOR THOMAS RIGBY GREENOUGH, M.A., F.R.I.C., died on June 29 at Leigh, Lancs., in his 59th year. After graduating at Cambridge he worked for a time in the laboratories of Sir Charles Cameron in Dublin, later proceeding to the Manchester Municipal School of Technology and then to King's College, London. He became an A.I.C. in 1909, and a Fellow three years later. Before the last war he was successively assistant to three well-known chemists—Mr. Cecil H. Cribb, and Mr. Edward Hinks, in London, and Professor W. H. Roberts, of Liverpool. Afterwards he joined the Anchor Cable Co., Leigh, as chemist.

Details of the total synthesis of quinine by R. B. Woodward and W. E. Doering, recently reported in THE CHEMICAL AGE, are contained in the issue of *The Pharmaceutical Journal* for July 1 (p. 12).

Parliamentary Topics

Questions on Patents

IN the House of Commons last week Mr. I. A. Edwards asked the Chancellor of the Exchequer how many actions for claims against the Government had been entered by inventors under the Patents Act since the war started, and how many had been successful. Sir John Anderson replied that there were only two instances of patentees seeking court intervention in settling the remuneration payable under Section 29 of the Act for Government use of their inventions. Neither case had yet come to trial.

Another question from Mr. Edwards elicited the information that in 1943 there were 21,944 patent applications, of which 7945 were granted. The corresponding figures for the four years 1939-1942 were respectively : 33,109, 17,605; 18,254, 11,453; 16,847, 11,179; 18,624, 7969.

Low-Grade Fuels

Asked by Sir W. Edge as to what action he was taking to secure increased use of low-grade fuels by industry, the Minister of Fuel (Major Lloyd George) stated that substitution of lower grade fuels for those normally used had already been carried out to a considerable extent, adding that arrangements had recently been made for the installation of forced-draught furnaces at a number of works so that a greater range and amount of inferior fuel could be taken.

Chancellor on Research

Replying to points raised on the third reading of the Finance Bill, the Chancellor of the Exchequer, Sir John Anderson, told the Commons that he wanted to do all he could to make industry more research-minded. Dealing with the matter of giving special taxation relief for research expenditure, he said that research to a very large extent produced results which were not limited to those who undertake the research, as they were spread over a long period and did not accrue immediately. Unless research was undertaken without too close a regard to the immediate benefits that might accrue, we should go without a great deal of fundamental general research. That was a justification for putting research on a different footing from other expenditure by industry.

A claim by the Bayer Co., Ltd., of Canada, that its contracts with I.G. Farbenindustrie were dissolved when Canada and Germany entered the war was dismissed by Justice G. A. Urquhart recently. This company and the German corporation entered into a 50-year contract in 1923. Since September, 1939, the I.G. share has been paid to the Custodian of Enemy Property.

Pine Tar

Report on Destructive Distillation

A REPORT on "Production of Pine Tar by Destructive Distillation of Canadian Softwoods," by H. Schwartz and C. Greaves, has been issued by Forest Products Laboratories, of Ottawa, Canada, and is summarised in *Canad. Chem. and Proc. Ind.*, May, 1944, p. 326.

In the early part of the war there was a greatly increased demand both in England and in Canada for pine tar as a plasticiser in the manufacture of tyres from natural rubber. As a result, a study of possible Canadian sources was undertaken. Eleven different types of raw material were investigated and the yield and properties of the tars obtained were determined. In the laboratory experiments carried out, selected resinous Douglas fir and white pine waste woods gave exceptionally good results, but this was found to be because the small samples distilled were not representative of the average type of resinous waste wood available at the mills. When these two raw materials were distilled experimentally on a commercial scale, much lower yields were obtained : 734 lb. and 478 lb. per cord respectively. Whereas the yield from the resinous white pine waste wood was rather low, that from the Douglas fir was fairly good, being in the neighbourhood of the yield obtained from southern pine stumpwood.

Canadian Supplies Available

Results are reported of surveys of the amount of selected resinous Douglas fir waste wood available in the Vancouver area and also of resinous waste wood in two large Eastern white pine mills. Information is included on the resin content of the samples of wood examined and on the possible use of fractions of the Douglas fir tar for ore flotation purposes, as well as a description of the apparatus and procedure used in the preparation of the tar.

LETTER TO THE EDITOR

Automatic Siphon

SIR,—I note on p. 5 of your issue for July 1 that you have reproduced Dr. Tompa's note on "An Automatic Siphon" from my May issue.

I learn from Messrs. Kodak, Ltd., that they have in fact marketed such a siphon for many years in various forms, although it appears doubtful whether a description of it has previously been published. I am putting a brief note to this effect in the July issue of my Journal.—Yours faithfully,

H. R. LANG, Editor,
Journal of Scientific Instruments.

General News

Specification D.T.D. 599, issued by the Ministry of Aircraft Production, deals with non-corrosive flux for soft soldering (H.M.S.O., 6d.).

Joint Production Committees or equivalent bodies exist in 4565 firms, stated the Parliamentary Secretary to the Ministry of Production last week.

A tank containing some 10,000 gallons of chemicals was destroyed by fire on Friday last week at the Scottish Tar Distillers, Ltd., Glasgow, the damage being estimated at £1000.

The only change in the prices of unrefined oils and fats and technical animal fats allocated to primary wholesalers and large trade users during the five weeks ending August 5, 1944, is: Linseed oil, crude, increased by £2 to £62 per ton naked ex works.

More than a million tons of fertilisers were sold by Fisons, Ltd., chemical fertiliser manufacturers, during the year ended September 30 last, according to their annual report. Working at maximum capacity, their factories have set up a new record.

The part played by postal censorship in unravelling the activities of I.G. Farbenindustrie and other similar concerns was referred to by the department's Parliamentary Secretary in the Commons debate on the Ministry of Information.

Fuel Efficiency Bulletin No. 31, now available from regional fuel efficiency committees, deals with fuel economy by water saving. Suggestions on the saving of power by the avoidance of needless pumping, and an appendix on pressure loss in pipe lines, are among the interesting features included.

The arrangement announced on July 21, 1942, for the purchase of wolfram concentrates by Non-ferrous Minerals Development, Ltd., at Plympton, South Devon, will be terminated on December 31, 1944, and no concentrates will be accepted by Non-ferrous Minerals Development, Ltd., after November 30. In consequence, it is reported that a well-known wolfram mine in S.W. England is to close, as imported Spanish material is taking the place of its product.

Employees of 450 firms and organisations in England and Wales joined the Red Cross Penny-a-Week Fund during May, representing an additional income of approximately £400 a week. The thirty-third consignment of medical supplies sent to Russia by the Red Cross and St. John weighed 452 tons and was valued at £247,874, the cost being met from Mrs. Churchill's Red Cross Aid to Russia Fund, to which 14 million members of the Red Cross Penny-a-Week Fund devote one-quarter of their contributions.

From Week to Week

The Rubber Manufacturers' Research Association is planning temporary extensions to its laboratories at Croydon to house the Research and Development Division. Arrangements are also being considered for carrying out certain fundamental research on an extra-mural basis.

The possibility that the kelp industry of Lewis and Harris may be revived has been encouraged by the visit of Mr. D. T. MacCowan, of Cefoil, Ltd., to the island in order to discuss prospects with the local authorities. Cefoil, Ltd., already operates in Uist, and Mr. MacCowan expressed the hope that it might be possible to start in Lewis this autumn.

The Chemical Engineering Group of the S.C.I. has added Nos. 12 and 12a (sold together, price 2s.) to its series of Data Sheets. These provide graphs for reckoning the densities of pure mixtures of H_2SO_4 , HNO_3 , and H_2O in gm. per c.c. at $25^\circ C.$ (No. 12) and for finding the temperature correction coefficient (0.001 per $^\circ C.$). The author is Dr. C. McKinley (*Chem. Met. Eng.*, 1943, 50, 7).

An Aluminium Development Association has been formed and registered as a company limited by guarantee without share capital. The objects of the association are to promote the use of aluminium and to provide facilities for research work and the discussion of problems other than those of wages and prices. Sir William Murray Morrison, Mr. G. Boex, Mr. G. Cunliffe and Mr. W. T. Emery, all of the British Aluminium Co., Ltd., are among the first members of the executive council.

The Silk and Rayon Users' Association, in an official memorandum, has put forward a proposal for an independent body, with statutory powers, to formulate and enforce minimum standards throughout the whole range of textiles. Opposition is offered, in principle, to financial inducements to transfer factories to new industrial areas, and a policy of "quantitative control with defined spheres of allocation" is urged on the Government as a basis of international commercial relations.

Three projects are included in "Constructional Scheme No. 1," a plan for the first water-power scheme to be put in hand by the North of Scotland Hydro-Electric Board, involving a sum of £4,600,000. By far the biggest of the three is the Loch Sloy scheme, by which the waters of the loch converge at a generating station on the west back of Loch Lomond. This project will employ 2500 workers for 2½ years, and will result in a yearly saving of 90,000 to 100,000 tons of coal.

The Institution of Chemical Engineers is forming a north-western branch. The inaugural meeting at which the officers will be elected is arranged for October 7, and in the meantime all who are interested in this new development should communicate with Mr. W. Cowen, at the College of Technology, Sackville Street, Manchester 1.

Foreign News

Scheelite has been found at a gold mine in the interior of British Guiana.

A roofing material based entirely on cellulose is being made in a new factory, started by the Köpings Eternit A.B., Sweden, with an annual capacity of 10,000 tons.

Seven gas works in Sweden have started the production of benzol since 1941. Production in 1939, when only two plants were extracting raw benzol, was 2200 metric tons.

Power alcohol is being produced at a factory erected by the Delhi Cloth Mills at Durala, India. There is one other similar plant, and that is situated in Mysore.

The largest steelworks in Northern Italy, situated at Piombino in Tuscany, has been dismantled by the Germans, and the equipment sent to the Reich.

The U.S. Department of Labour is issuing a series of reports on the health hazards presented by various synthetic rubbers. The first one deals with neoprene.

Large-scale synthetic rubber production is the subject of a sound-film which has been made by the U.S. Bureau of Mines in co-operation with the Goodyear Company.

Oil production in Colombia in the first quarter of 1944 is recorded at 4,930,000 barrels, compared with 1,035,000 barrels in the like period of 1943.

As from July 1 import licences are required for all goods imported into Peru, including those from the United Kingdom, according to a report telegraphed by H.M. Ambassador at Lima.

Official estimates of the 1943-44 sunflower-seed crop in Argentina give the record total of 1,200,000 tons; this is mainly due to increased sowings, and compares with the production of 337,302 tons last season.

Use of power alcohol in Brazil for admixture with imported petrol is diminishing, only 30,789,022 litres being distributed for this purpose last year, as compared with 62,923,237 in 1942 and 74,467,263 in 1941.

The International Samples Fair at Barcelona and the fact that no British goods were exhibited there led to questions in the House of Commons last week. Mr. Eden stated that the only foreign countries to participate were the United States, Sweden, Switzerland and Chili, and explained our absence as inevitable owing to the total absorption of British industry in war work.

The modern distillery established near Beirut, Syria, has an annual capacity of 250 metric tons of alcohol. An additional 350 tons is available from small alcohol producers using local grains.

Four methods for extracting oil from shale are being used in Sweden. The Ljungström method, in which the shales are heated in the bed and the oil recovered by condensation, is said to give the best results, the efficiency being three times that of the traditional retort system.

The neoprene synthetic rubber process of Du Pont de Nemours and Company is being made available to the Soviet Union, it was announced this week, as a result of the negotiations undertaken at the request of the United States Government. No compensation is being asked of the Soviet Union for the production of neoprene while Russia is at war with Germany.

Studies of the effect of sunlight on the riboflavin (vitamin B₂) content of milk have been made by Peterson, Haig and Shaw at the North Carolina State College of Agriculture and Engineering, according to a report of the American Chemical Society. Experiments show that 40 to 70 per cent. of riboflavin was lost in 1 to 3 hours with milk in standard bottles left standing in the sun at temperatures between 60° and 72° F.

Forthcoming Events

The lectures on Colloid Science by Professor E. K. Rideal announced for **July 6, 20 and 27** in our recent issues, have been postponed, as the London Section committee of the Oil and Colour Chemists' Association feel that, owing to the resumption of enemy attack on Southern England, they cannot at present be held with reasonable assurance that they will not be interrupted.

The London Section of the **Society of Chemical Industry** holds a joint meeting with the **Institute of Metals** on **July 13**, at 7.30 p.m., in the hall of the Institution of Mechanical Engineers, Storey's Gate, Westminster. Mr. A. R. Powell, of Johnson Matthey and Co., Ltd., will read a paper on "The Minor Metals."

The 63rd annual meeting of the **Society of Chemical Industry** will be held on **July 13 and 14**. On the first day there will be a meeting of the chairmen and hon. secretaries of sections and groups, at 4.30 p.m., at Stewart's Restaurant, Old Bond Street, and this will be followed at 7.30 p.m. by a joint meeting of the London Section and the Institute of Metals, to be held at the Institution of Mechanical Engineers, Storey's Gate, S.W.1. The business meeting starts at 10.30 a.m. on the Friday, and the presidential address will be given at 11.30 a.m. at the Royal Institution, Albemarle Street, London, W.1.

JULY 8, 1944

THE CHEMICAL AGE

45

The afternoon session begins at 2.45 p.m., when Professor A. V. Hill will give his Messel Medalist's address.

The annual general meeting of the Institute of Factory Managers will be held at the Hotel Russell, Russell Square, London, W.C.1, at 3 p.m., on July 15.

Commercial Intelligence

The following are taken from printed reports, but we cannot be responsible for errors that may occur.

Satisfactions

BITUMINOUS COMPOSITIONS LTD., Wakefield. (M.S., 8/7/44.) Satisfaction June 16, of a mortgage registered October 18, 1941.

JOSEPH COOK SONS & CO. (1930) Ltd., Washington, iron and steel manufacturers. (M.S., 8/7/44.) Satisfaction June 15, £6,000, registered January 29, 1937.

Declaration of Solvency Filed

HEMERDON WOLFRAM LTD., Liskeard, mining company. (D.S.F., 8/7/44.) June 12.

Company News

R. Graesser, Ltd., have increased their nominal capital beyond the registered capital of £100 by the addition of £99,900 in £1 ordinary shares.

Titanine, Ltd., have declared a final dividend of 10 per cent. for the year ended March 31, making 20 per cent. (same). Profit for the year was £26,848 (£25,351).

Fisons, Ltd., whose dividends were announced in this column a fortnight ago, now report a net profit of £100,541 for the year ended September 30 (£83,034 for 15 months). It is further reported that two fertiliser businesses have been acquired and that agreements have been concluded for the purchase of three other such businesses. As a further stage in the reorganisation a number of subsidiaries are being liquidated.

New Companies Registered

Theodore St. Just & Co. Ltd. (388,461).—Private company. Capital: £1000 in 1000 shares of £1 each. Manufacturers of and dealers in aromatic and fine chemicals, perfumes, essences, etc. Directors: Mary A. Desvaux; Irene J. Soper. Registered office: 1 Shorold Road, London, S.W.6.

Eric D. Singer (Chemotex) Ltd. (388,323).—Capital: £100 in 100 shares of £1 each. Exporters, importers, merchants, manufacturing and general chemists, manufacturers of and dealers in dyestuffs or intermediates, etc. Subscribers: Peggy L. Wyatt; Dorothy M. Price. Registered office: 1 Laurence Pountney Hill, London, E.C.4.

Atomic Pulverizers, Ltd. (388,290).—Private company. Capital: £2000 in 2000 shares of £1 each. Mechanical, electrical and general engineers, grinders of substances of all kinds, chemists, builders, manufacturers of scientific apparatus, etc. Directors: A. R. Wilson; Florence M. Wilson. Registered office: 16 Philpot Lane, London, E.C.3.

Chemical and Allied Stocks and Shares

ENCOURAGED by the war news, the undertone of stock markets remained very firm, with industrial shares again moving higher and British Funds also in steady demand, although the volume of business failed to show general improvement. Markets have been favourably influenced by the small amount of selling again in evidence and by other indications of confidence in the future. In accordance with the general tendency, shares of chemical and kindred companies were firm, and tended to move higher in price.

Borax Consolidated deferred continued in better demand, and further improved to 38s. 6d. on hopeful market views of post-war growth of the company's business overseas. B. Laporte were 83s. 9d. Imperial Chemical changed hands around 40s., yielding 4 per cent. on the basis of the 8 per cent. dividend ruling since 1938, which has an attractive appearance when it is remembered that last year a dividend of 11 $\frac{1}{2}$ per cent. could have been paid if profits had been fully distributed. Lever & Unilever were firm at 39s. 3d., and Lever N.V. 38s. 9d. The units of the Distillers Co. at 99s. 6d. were little changed on balance, having virtually recovered the deduction of the dividend from the price. Full results of the last-named company showed that the increased dividend of 18 $\frac{1}{2}$ per cent. came out of earnings sufficient to have paid nearly 26 $\frac{1}{2}$ per cent. United Molasses have been favoured on yield considerations and have risen to 37s. British Plaster Board were again around 35s., expectations being that results will create a good impression, although the general belief is that a cautious policy is likely to be followed and that the dividend may, therefore, not be increased at this stage.

Textile shares were generally firm, with Bleachers 11s., Calico Printers higher at 17s. 3d., and Bradford Dyers 24s. 3d. Activity was shown in Courtaulds at 57s. 9d., although no change is being looked for in the interim payment, the assumption being that any possibility of an increase will be left until the final dividend. British Celanese were 30s. 9d., market views being divided as to the likelihood of the shares

entering the dividend list before the end of the war. Associated Cement were better at 68s., and Tunnel Cement moved up to 54s. 6d. Dunlop Rubber became firmer at 46s. 9d., with Turner & Newall 84s. 9d., Murex 105s. 7½d., Imperial Smelting 14s. 7½d., Pressed Steel 32s., and British Match 41s. British Aluminium showed firmness at 48s. 3d., as did British Oxygen at 82s. 9d.

Shares of companies connected with plastics were less active, although quite well maintained in price, with De La Rue 18s. 9d., Erinoid 5s. ordinary 11s., and British Industrial Plastics 2s. ordinary 7s. 6d. Yield considerations again tended to draw more attention to iron and steel shares, Guest Keen rising to 40s. 3d., Babcock & Wilcox to 52s. 3d., Stewarts & Lloyds to 57s. 3d., while Consett Iron 6s. 8d. units were firm at 9s. 3d. on continued market hopes of an improved dividend. Staveley were 54s. 3d., United Steel 27s., and Dorman Long 28s.

In other directions, Greeff-Chemicals 5s. ordinary were maintained at 8s. 3d., Monsanto Chemicals 5½ per cent. preference at 28s., while British Drug Houses were 26s. 3d., Burt Boulton 24s., and W. J. Bush again 63s. 9d. Boots Drug remained under the influence of the dividend and rose further to 51s. Sangers were 26s. 10½d., and Timothy Whites 35s. 10½d. Gas Light & Coke ordinary were 20s. 4½d. Following their recent advance, profit-taking was more in evidence in Triplex Glass, which moved back to 40s. 6d. Oil shares were firm with higher prices for the "leaders," with "Shell" in demand and rising to 85s. on the strong position again shown by the accounts.

British Chemical Prices

Market Reports

THE movement in industrial chemicals continues to be of fairly substantial dimensions, and the demand appears to be well spread over most sections of the market. A firm tone is in evidence throughout the London markets and a fair activity is maintained in most sections, although the supply position still remains difficult. Firm prices are ruling in the soda products section, with prussiate and chlorate of soda in good request. A steady demand is reported for Glauber salt and salt cake, and inquiry for hyposulphite of soda is maintained on a moderate scale. Caustic soda and bicarbonate of soda are active. Scarcity of offers is the chief feature of the potash section, and small parcels of yellow prussiate are commanding high prices. A steady demand for acid phosphate of potash is reported, and permanganate of potash is a good market. There is an active inquiry

for formaldehyde and, among the acids, oxalic and acetic are moving well. Salicylic acid is firm and in steady request. Interest in the coal-tar products market is at the moment chiefly concerned with deliveries against contracts already made, although a good demand is noticeable in the markets for creosote oil and crude tar. The light distillates are in brisk demand, but the pyridines are quiet. Elsewhere, the market displays a steady tone.

MANCHESTER.—Deliveries of chemicals against existing orders, as well as new bookings, have been affected to some extent by the start of the annual holidays in this part of the country, though apart from this factor business on the Manchester chemical market during the past week has continued on reasonably steady lines, with the leading "heavies," including alkalis, ammonia and magnesia products, and sulphuric and hydrochloric acids, being taken up in reasonably good quantities. Quotations in all sections remain on a very strong basis. With regard to the tar products, new bookings during the week have been on a moderate scale, with deliveries of most classes of both light and heavy materials going forward steadily against existing orders.

GLASGOW.—In the Scottish heavy chemical trade business has again been rather quiet during the past week for home trade. The annual holidays have commenced and a number of works were closed during the week, which no doubt accounts for this. Export trade remains very limited. Prices keep firm with no actual changes.

Price Changes

Linseed Oil.—Crude, per ton, naked ex works, £62.

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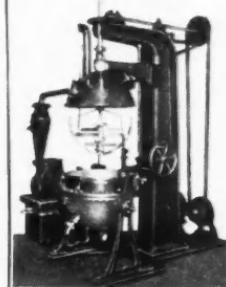
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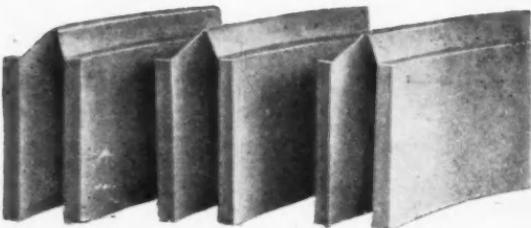
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